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Number 3

The Newsletter of the Montana Natural Heritage Program

Summer, 2000

From the Director

Summer in Montana. For many of us, it symbolizes vacations and having fun. For Heritage Program biologists, it means literally moving their whole job outdoors. Summer is the time when our expert field staff heads out across Montana to look for plant and animal species of concern, and outstanding natural communities or habitats.

Field surveys are a key source of information for the Heritage databases, because the distribution and status of many species and habitats in Montana are not well documented. This is especially true for rare plants, certain habitats or community types, and for the less conspicuous animal groups such as bats and amphibians. Information is also sketchy or absent for many parts of the state not well-studied by biologists. Of all the location records in our database, about one-quarter have come from program field surveys, and a number of plant and animal species have been discovered for the first time in Montana by Heritage Program biologists.

We rely on partnerships to help support virtually all of our field inventory work. Over the years, the Bureau of Land Management, U.S. Forest Service, U.S. Fish & Wildlife Service, and various other agencies and organizations have provided funding for survey projects across the state. Often this funding comes in the form of cost-share grants and is leveraged by dollars from state agency partners. One advantage of this collaborative project approach is that it focuses survey projects on species or areas of agency concern, and the results are of immediate use to help guide land management and planning.

Although we focus mostly on public lands, we also work with private landowners to document the important habitat and wildlife resources sustained by their good stewardship. This is important for the accuracy of survey results, since plant and animal populations range across the landscape with little regard for ownership boundaries. We also try to focus on especially vulnerable species and rare or declining community types--those that stand to benefit most from better knowledge to guide decision-making.

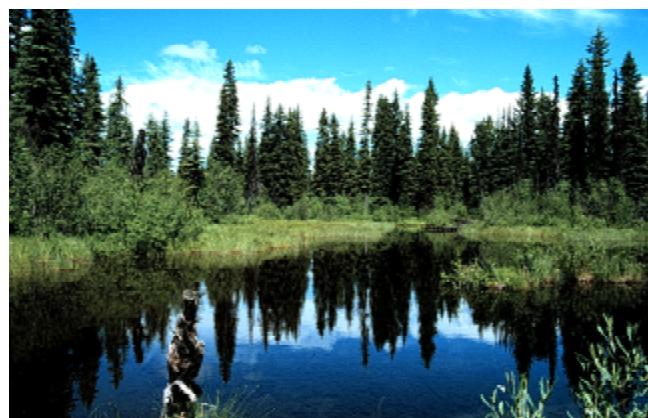
Then there's the human side. Like any other outdoor job in Montana, fieldwork is made up of long days in hot, rugged, sometimes dangerous country, far from beds, showers, and home. But if you asked our intrepid experts, they would probably say that the work is the most fun they have all year. And that's why we respect and treasure them.

Sue Crispin

Flathead Wetland Inventory Year Two: The North Fork

Montana's Flathead River watershed supports one of the greatest and most diverse concentrations of wetlands in the Rocky Mountains, thanks to glaciation, high precipitation, and extensive floodplains.

For these reasons, MTNHP chose the Flathead drainage as an initial focus for our statewide wetland inventory project. In 1999, we completed the first report identifying ecologically significant wetlands in the Swan, Flathead, Stillwater and Swan River valleys. Our next focus was to survey and document key wetlands in the Flathead's North Fork drainage. The North Fork has an abundance of wetland and riparian habitat, and stands out among the Flathead drainages as having the least impacted wetland and riparian systems. Wetlands in the North Fork are also important for two threatened species, *Salvelinus confluentus* (bull trout) and *Ursus arctos horribilis* (grizzly bear).



The Tepee Lake wetland complex supports an outstanding diversity of plant communities. *Photo by Jack Greenlee*

We selected 24 wetlands in the North Fork watershed for inventory during the summer of 1999, focusing on those with intact native plant communities, little or no major hydrologic modification, and with rare plant and animal species or outstanding wildlife values. Key sources of this information included local experts, National Wetland Inventory maps, and

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Wetland Ecologist Joins Staff



In April we welcomed our newest staff member to the Program. Ecologist Marc Jones joins us by way of Washington and British Columbia, where he taught introductory biology labs and worked as a field ecologist for the Washington Natural

Heritage Program. He is delighted to be back in Montana—he lived in Missoula for a number of years where he earned his M.S. in Environmental Studies and worked as a consultant for Five Valleys Land Trust. Marc brings strong field, writing, and organizational skills to the position.

Marc will be focusing on inventories and evaluations of high quality wetlands throughout the state, and further developing the riparian and wetland component of our ecology program.

Marc can be reached at 406-444-3488, or marcj@state.mt.us.

The Montana Natural Heritage Program currently has two positions open: one for a Web Developer/Database Specialist; the other for a Zoologist. Position descriptions and additional information on these positions are available on our website ([www.nris.state.mt.us/mtnhp/employ](http://nris.state.mt.us/mtnhp/employ)) or by calling 406-444-3009.

Flathead Wetland Inventory (continued from Page 1)

aerial photographs. We emphasized lower perennial riverine and depressional wetlands because they are subject to greater development pressures. We also focused on wetlands outside the boundaries of Glacier National Park, which are more vulnerable to future loss or impairment. Since our inventory emphasized larger wetlands, some types that are small by nature (for example, small seeps and springs) were not systematically covered. We conducted inventories on private lands when landowners granted permission.

Through our field surveys, we identified ten major wetland complexes of ecological significance in the North Fork drainage. They were ranked on the basis of size, condition or functional integrity of the wetland and surrounding landscape, diversity of vegetation types, presence of uncommon natural vegetation types, and presence of rare plant or animal species.

Tepee Lake Complex, Mud Lake Complex and Hay Creek-North Fork Floodplain wetlands stood out as the most ecologically significant wetlands in the North Fork. These sites support an outstanding diversity of plant communities that are in excellent condition, including a large uncommon peatland community dominated by *Carex limosa* (mud sedge), and excellent examples of more common *Salix drummondiana* / *Carex utriculata* (Drummond willow / beaked sedge) shrublands. Rare plant species found at these sites include *Scirpus hudsonianus* (Hudson's Bay bulrush), *Drosera anglica* (English sundew), *Eriophorum gracile* (slender cottongrass), as well as three rare mosses.

Schnaus Creek, Coal Creek-North Fork Floodplain and Coal Creek Complex were rated of very high significance due to their large size and high diversity of wetland habitats, including black cottonwood (*Populus balsamifera* spp. *trichocarpa*) forest communities along river terraces and floodplains. Nearby land use activities and presence of noxious weeds pose ecological risks at two of these sites.

Wetlands at Abbotts Flat, Hay Creek Fen, Cyclone Lake and Red Meadow Lake were ranked as highly or moderately significant. All are in excellent condition and have no noxious weeds; however, they are smaller and support less diversity of wetland features and communities than the wetlands of outstanding or very high significance.

Wetlands in the North Fork are threatened by increasing recreational and residential development, incompatible land use activities, and the growth and spread of noxious weeds. Fortunately, there are many opportunities to conserve and protect wetlands in the watershed. Leaving larger timber harvest buffers around wetlands and following best management practice guidelines limits hydrologic changes and reduces sediment inputs. Control of noxious weeds and preventing new infestations also protects the integrity of the natural plant communities.

Altogether, the Heritage Program surveyed 75 wetlands or wetland complexes in the entire upper Flathead watershed, of which 64 were identified as ecologically significant — 15 of Outstanding Significance, 15 Very High, 17 High, and 17 of Moderate Significance. Thirty-five percent of these lie primarily

on federal lands, 31% are largely state-owned, 31% are primarily on private or corporate land, and one (Safe Harbor Marsh) is a Nature Conservancy preserve. Because ownership of these

Heritage Program biologists identified ten wetland complexes of high significance in the North Fork drainage.

wetlands is mixed, conservation will require collaborative efforts among private landowners, land trusts, and public agencies.

Our surveys also showed that some wetland types, like valley bottom wet meadows and riparian communities, have declined greatly in quality and acreage. In contrast, open water or cattail marshes appear to be more extensive now than they were historically. A few types, like peatlands and spruce swamps, have always been rare and are especially important to protect because they provide outstanding habitat for wildlife and for rare plants and animals.

This project was supported by the Wetland Program of the Montana Department of Environmental Quality, and by Montana Fish, Wildlife & Parks. We also appreciate information provided by local contacts and permission granted by landowners to conduct surveys on several privately-owned sites.

Our first Flathead wetlands report is posted on the Montana Natural Heritage Program website, and the North Fork report will be completed and added to our website by the fall. This summer we're conducting similar wetland inventories on the Upper Yellowstone River watershed, so stay tuned for upcoming results.

U.S. Heritage Programs publish landmark biodiversity study

Have you ever wished for a single authoritative reference on the biological diversity of the United States? Wondered how many imperiled species there are in the U.S., which groups of animals are most at risk, or which parts of the country harbor the greatest biodiversity or the most intact ecosystems?

All this, and much more, has now been compiled in a handsome, copiously illustrated volume summarizing information collected over the past 25 years by the national network of Natural Heritage Programs. *Precious Heritage: The Status of Biodiversity in the United States*, was published this March by The Nature Conservancy and the Association for Biodiversity Information – a new organization representing, promoting and supporting the work of the Heritage Network

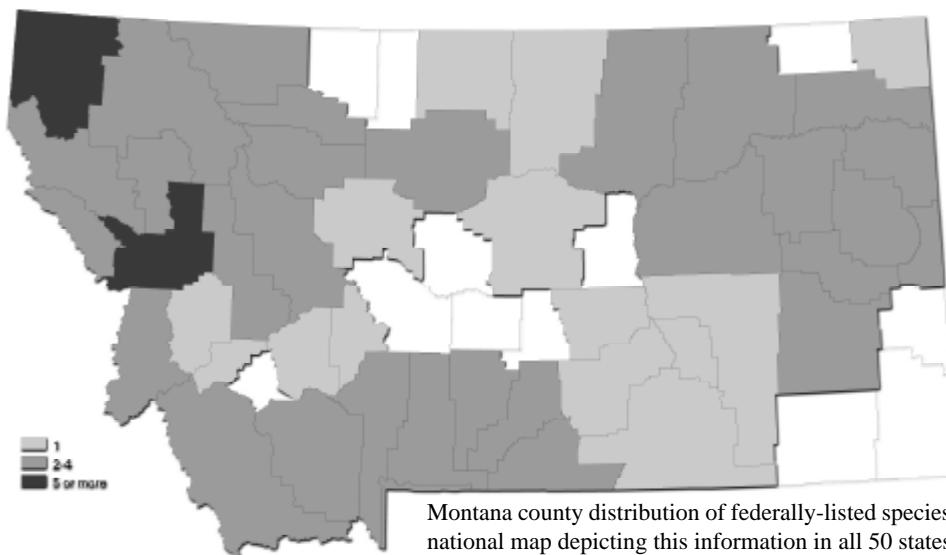
Among the findings revealed by this landmark study:

- Most of the world's plant and animal species are indeed found in the tropics, but fully 10 percent of the known species—a much higher figure than previously estimated—are found in the 50 states.
- The United States ranks at or near the top among nations in its variety of insects; in particular, the U.S. is extremely rich in bees (with nearly 4,000 native species), and leads the world in species of caddisflies, mayflies and stoneflies—aquatic insects that support many of our freshwater ecosystems, beloved by trout fishermen.
- The U.S. encompasses a greater diversity of major ecological systems—deserts, grasslands and different kinds of forests—than any other nation. It harbors 21 of the world's 28 different types of ecological regions (five more than the former Soviet Union).
- Over 500 native U.S. species are either confirmed or possibly extinct. Of the remaining native U.S. species, approximately one-third are considered to be "at risk", 7% of which are deemed "critically imperiled."

The report also highlights some surprising facts about Montana's biological diversity:

- ❖ Montana ranks among the highest states in habitat diversity, with over 300 native vegetation types.
- ❖ Montana also has among the highest diversity of mammals, with over 100 species.
- ❖ Relatively few Montana species are endangered compared to other states, because far more of our landscape still supports native vegetation than in most other parts of the country.
- ❖ Overall, we in Montana still have a great opportunity to maintain a healthy landscape and our diversity of native species.

Copies of *Precious Heritage* are available from Oxford University Press for \$45.00, and can be ordered through your local bookstore, or on the Internet via the ABI website at <http://www.abi.org/>.



Montana county distribution of federally-listed species. A national map depicting this information in all 50 states is included in *Precious Heritage*, and is one of dozens of maps and graphs illustrating the status of biodiversity in the United States.

Sheridan County's Glacial Legacies

Near the end of the last ice age around 12,000 years ago, Sheridan County lay along the receding edge of the continental glacier. As the glacier melted, huge volumes of water drained away to the south in broad outwash channels that followed the modern drainages of Big Muddy Creek and the Medicine Lake wetlands. Chunks of ice in morainal debris left depressions when they melted, creating the myriad of pothole wetlands that now pock the county's northeast corner.



Sheridan County's alkali lakes formed in glacial meltwater channels.
Photo by Bonnie Heidel

In 1999, Heritage Program scientists followed the path of these glaciers and their meltwaters to track down rare plants and outstanding examples of plant associations. The results of this research has greatly expanded our knowledge of Sheridan County's biological diversity.

Our surveys documented 15 special-concern and "watch list" plant species and 57 plant associations, including five associations new to the state and nine never before documented as community types. Over half of the state-significant species and vegetation types in Sheridan County are associated with wetlands, a legacy of the melting and slumping glacial front.

The county's eastern end supports the greatest diversity of native vegetation types and significant plant species, in part because it has the most extensive and diverse wetlands. These wetlands are centered around Medicine Lake National Wildlife Refuge and the Missouri Coteau prairie potholes area, where the U.S. Fish and Wildlife Service has focused its wetland and grassland conservation easement programs. Included among the wetlands are alkali lake systems that straddle the Montana-North Dakota state line and provide some of Montana's premier habitat for the piping plover (*Charadrius melanotos*), a shorebird listed as threatened under the Endangered Species Act.

To the west, Big Muddy Creek, Sheridan County's largest drainage, has ecologically intact headwater areas that extend into the Muddy Creek Badlands of Saskatchewan. These bottomlands and adjacent tablelands support a rich mix of species and habitats, and also contribute to protecting the county's water resources.

Sheridan County's alkali lake systems, sandhills, and prairie pothole mosaic of wetlands and grasslands are some of the largest identified to date in eastern Montana. The study suggests many opportunities to help maintain the county's special and diverse biological resources in concert with efforts to protect rangeland values, ensure water quality, provide hunting and other recreational opportunities, and control noxious weeds.

This project was supported by the U. S. Fish and Wildlife Service. The information gathered will be used by the Service for refuge management and conservation easement programs, and will also be a reference for watershed coordination and countywide planning. Copies of the report, due out in late summer, will be posted on the MTNHP website in early Fall, 2000.

Zoology Notes

Townsend's Big-eared Bat

They suffer from a bad public image, but bats are of high conservation interest throughout western North America, including Montana, because many species have restricted roosts—such as caves, abandoned mines, and bridges—which are vulnerable to human disturbance. The loss of mine roosts resulting from abandoned mine reclamation, and the disturbance of cave roosts due to increased recreational caving, are serious problems faced by bats.

During the past several years MTNHP has been gathering information on maternity roosts and hibernacula (where bats



Photo by J. Scott Altenbach

over-winter) for the 15 bat species that are found in Montana. Of special concern throughout the western United States is the Townsend's Big-eared Bat

(*Corynorhinus townsendii*), a medium-sized bat with spectacularly long ears and distinctive "lumps" on its nose. This bat is very sensitive to disturbance at roosts, and two eastern subspecies have been listed under the Endangered Species Act.

Although the species is widespread across Montana, only a half dozen maternity sites and fewer than 25 hibernacula are currently documented. No colonies in Montana are known to contain more than 150 individuals, and most are much smaller. The largest (and only) maternity colony regularly monitored in Montana, at Lewis and Clark Caverns State Park, has declined alarmingly in the last decade, increasing the concern about this species across the state.

To address bat conservation, information and management concerns in Montana, a state bat working group has been organized. The group exchanges information with the Western Bat Working Group and is helping develop an updated conservation strategy for the Townsend's Big-eared Bat. Through efforts with this and all other bat species we hope to assure that a healthy bat fauna remains a part of Montana's natural heritage.

